

## CLAIMS

1. A temperature sensing tube fabrication method comprised of:

A step that provides for a tubular blank of an appropriate length.

- 5 A step in which a curvilinear semifinished product of the tube member bottom section aperture is formed.

A step in which a semifinished product of the neck base and the neck body is formed.

A step in which a finished product having an outer conoidal hem and an inner conoidal hem is formed.

- 10 The said steps complete the fabrication of the temperature sensing tube.

2. As mentioned in Claim 1 of the temperature sensing tube fabrication method of the invention herein, during the said step in which the said semifinished product of the said neck base and the said neck body is formed, the said tube member bottom section aperture is formed at the same time.

- 15 3. As mentioned in Claim 1 of the temperature sensing tube fabrication method of the invention herein, between the said step in which the said semifinished product of the said neck base and the said neck body is formed and the step

when the said finished product having the said outer conoidal hem and the said inner conoidal hem is formed also includes the forming the said semifinished product of the said tube member bottom section hole mount.

4. A temperature sensing tube fabrication method comprised of:

5           A step that provides for the said tubular blank of an appropriate length.

          A step in which the said tubular blank formed in the previous step is moved between a female die having a die cavity and a curved bottom edge and a punching rod having a thin lengthy rod section and a curved front end section for impact forging to thereby form the said curvilinear semifinished product of the said tube member bottom section aperture.

          A step in which the said semifinished product of the previous step is moved between a female die having a die cavity and a curved bottom edge and a punching die having a channel and a suitably long flared hole section at its front end for impact forging to thereby form the said semifinished product of the said neck base and the said neck body.

          A step in which the said semifinished product of the previous step is moved between a female die having a die cavity and a curved bottom edge and a punching die having a channel and a suitably long flared hole section at its front end for impact forging to thereby further form the said semifinished

product of the said neck base and the said neck body.

A step in which the said semifinished product of the previous step is moved between a female die having a die cavity, a circular groove-shaped bottom edge, and a flared opening and a punching die having a channel, a  
5 suitably long flared hole section at its front end, and a conical edge for impact forging to form the said finished product having the said outer conoidal hem and the said inner conoidal hem.

The said steps complete the fabrication of the temperature sensing tube.

5. As mentioned in Claim 4 of the temperature sensing tube fabrication method of  
10 the invention herein, during the said step in which the said semifinished product of the said neck base and the said neck body is formed, the said female die can be substituted by another that has the said die cavity and the said circular groove-shaped bottom edge to form the said tube member bottom section hole mount at the same time.

15 6. As mentioned in Claim 4 of the temperature sensing tube fabrication method of the invention herein, between the said step in which the said semifinished product of the said neck base and the said neck body is formed and that when the said finished product having the said outer conoidal hem and the said inner

conoidal hem is formed further includes step in which the said semifinished product of the previous step is moved between the said female die having the said die cavity and the said circular groove-shaped bottom edge and the said punching die having the said channel and the said suitably long flared hole section at its front end for impact forging to form the semifinished product having the said tube member bottom section hole mount.

7. A temperature sensor temperature sensing tube comprised of:

A head section having an outer conoidal hem formed along the circumference at its lower extent, a neck section is formed at the center, and a passage is disposed in the said neck section.

The said tube member having a hollow interior section that is contiguous with the said passage and the said aperture in its bottom section.

The features of which are: the said head section and the said tube member are forged from the said tubular blank into a one-piece, entirely unitary structural component, with the said head section outer conoidal hem and neck section formed as extensions of the said tube member.

8. As mentioned in Claim 7 of the temperature sensor temperature sensing tube of the invention herein, after the said head section is extended from the said tube

member to form the said outer conoidal hem, the upper circumferential edge of the said outer conoidal hem is bent into a U-shape such that it overlaps against the said outer conoidal hem inner conoidal hem, following which the said neck section is formed from the bottom section.

5     9. As mentioned in Claim 7 of the temperature sensor temperature sensing tube of the invention herein, the said neck section includes a gradually reduced neck base which is larger than and formed upward from the said bottom section and continues extending above into a neck body having an approximately equal tubular diameter.

10    10. As mentioned in Claim 7 of the temperature sensor temperature sensing tube of the invention herein, the said passage includes a hole section of a nominally constant inner diameter and a conic hole section of graduated reduction from the bottom towards the top.

11. As mentioned in Claim 7 of the temperature sensor temperature sensing tube of  
15     the invention herein, the said tube member aperture is disposed in the said hole mount formed inward at the said bottom section.